

CLAIMS

1. A perforator for selectively perforating sheets of paper that are moving successively through the perforator, the perforation being along a direction of the movement, the perforator comprising:

a first perforating tool past which one or more sheets of paper move successively, the first perforating tool having a perforating position to perforate paper passing the perforating tool, and having a neutral position to refrain from perforating paper passing the perforating tool, and having an input for receiving a first control signal; and

10 an electronic control apparatus having an input to receive a second control signal and an output connected to the input of the first perforating tool, wherein, for each sheet of paper that passes the first perforating device, the second control signal corresponds to the sheet, and wherein, the electronic control apparatus is configured such that, for each sheet of paper that passes the first perforating device, if perforation is desired for the sheet based on the second control signal, the electronic control apparatus emits a signal from the output of the electronic control apparatus to the input of the first perforating tool to place the first perforating tool in the perforating position, and if perforation is not desired for the page based on the second control signal, the electronic control apparatus does not emit a signal to the first perforating tool.

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20 2. A perforator as claimed in claim 1, wherein the electronic control apparatus is operative, for each sheet of paper that passes the first perforating device, to set a distance of the first perforating tool from the sheet such that, in the perforating position, the first perforating tool touches the sheet, and in the neutral position, the first perforating tool is kept apart from the sheet.

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3. A perforator as claimed in claim 1, wherein the first perforating tool is movable relative to the paper.

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4. A perforator as claimed in any of claims 1 to 3, in which a position of the first perforating tool (3) is variable in the traverse direction.

5. A perforator as claimed in any of claims 1 to 3, further comprising:
at least a second perforating tool.

6. A perforator as claimed in any of claims 1 to 3, wherein the first perforating tool is a rotating disc having a perforating edge.

5 7. A perforator as claimed in claim 6, further comprising:
an opposing roll that is situated in an opposed position to the first perforating tool.

8. A perforator as claimed in claim 7, wherein the opposing roll has a flat surface.

10 9. A perforator as claimed in any of the claims 1 to 3, wherein the first perforator receives each sheet after a printing of the sheet.

15 10. A perforator as claimed in any of the claims 1 to 3, wherein the perforator is connected to a printer.

15 11. A method of selectively perforating sheets of paper that are moving successively through a perforation device, the perforation being along a direction of the movement, the perforation device including a perforating tool having a perforating position in which a sheet of paper is perforated and a neutral position in which a sheet of paper is not perforated, the device further including a control unit to control the perforating tool, the method comprising acts of:

successively receiving the moving sheets at the perforating device;
for each received sheet, receiving at the control unit a first control signal corresponding to the received sheet;

25 sending a second control signal from the control unit to the perforating tool to set the perforating tool into the perforating position if, based on the first control signal, a received sheet to be perforated enters the perforating device; and
perforating the received sheet along the direction of movement in accordance with the second control signal to produce a perforated sheet.

30 12. A method according to claim 11, wherein the act of receiving includes:
receiving the signal from a printer output data.

13. A method according to claim 11, further comprising an act of:
transferring the sheets to a mailing machine after the act of perforating.

5 14. A method of selectively perforating sheets of paper moving successively through a
perforating device, the perforating device including a first perforating tool for perforating
sheets of paper and a control unit for controlling the perforating tool, wherein the first
perforating tool perforates the paper along a direction of the movement of the sheets, the
method comprising acts of:

10 successively receiving a plurality of sheets of paper as input to the perforating device;
and

15 positioning the first perforating tool in either a perforating position to perforate paper
or a neutral position to allow paper to pass unperforated, including:
 for at least a first sheet, receiving at the control unit a first control signal
corresponding to the first sheet;
 sending, based on the first control signal, a second control signal from the
control unit to the first perforating tool to cause the first perforating tool to assume the
perforating position; and
in response to receiving the second control signal from the control unit, actuating the first
20 perforating tool to assume the perforating position while the first sheet passes.

25 15. The method of claim 14, wherein the act of positioning includes:
 maintaining the first perforating tool in the neutral position if no control signal is
received at the first perforation tool.

16. The method of claim 14, further comprising an act of:
controlling the control unit with a second signal received from a data signal output of a
printer.

30 17. The method of claim 14, further comprising an act of:
controlling the control unit with a second signal received from a reader that reads
codes from the sheets of paper.

18. The method of claim 14, wherein the perforation unit includes at least a second perforating tool that selectively perforates the selected sheets of paper such that selected sheets receive at least two perforations.

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19. The method of claim 14, wherein the perforation unit includes at least a second perforating tool, the method further comprising an act of:

selectively positioning the second perforation tool in the perforating position contemporaneously with positioning the first perforation tool in the perforating position such that one or more selected sheets receive at least two perforations.

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20. The method according to claim 12, further comprising an act of:

transferring the sheets to a mailing machine after the act of perforating.

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21. The method of claim 20, wherein the act of receiving the signal includes:
receiving the signal from printer output data.

22. The method of claim 20, wherein the act of receiving the signal includes:
reading a code in the sheets with a reader.

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23. The method of claim 11, wherein the act of receiving the signal includes:
reading a code in the sheets with a reader.

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24. The perforator of claim 1, wherein the control apparatus is operative to set the first perforating tool in the perforating position for different durations such that perforations of different lengths are produced for two or more of the perforated sheets.

25. The method of claim 11, wherein:

the first control signal received by the control unit indicates that the perforating tool is to be set into the perforating position for a first duration;
the act of perforating includes perforating the sheet for a first length along the direction of movement in accordance with the first duration indicated by the signal; and

two or more of the perforated sheets have perforations of different lengths.

26. The method of claim 14, wherein:

the first control signal indicates that the first perforation tool is to assume the
5 perforating position for a first duration;

the act of actuating includes:

actuating the first perforation tool to assume the perforating position for the first
duration; and

returning the first perforation tool to the neutral position after the first duration
10 has elapsed to produce a perforation of a desired length; and

the desired length of the perforation is different for two or more of the
perforated sheets.

27. A system for selectively perforating sheets of paper moving successively through a
15 perforating device, the perforating device including a first perforating tool for perforating paper
and a control unit for controlling the perforating tool, wherein the first perforating tool
perforates the paper along a direction of the movement of the sheets, the system comprising:

means for successively receiving a plurality of sheets of paper as input to the
perforating device; and

20 means for positioning the first perforating tool in either a perforating position to
perforate paper or a neutral position to allow paper to pass unperforated, including:

means for receiving at the control unit, for at least a first sheet, a first control
signal corresponding to the first sheet;

means for sending, based on the first control signal, a second control signal from
25 the control unit to the first perforating tool, to cause the first perforating tool to assume
the perforating position; and

means for actuating, in response to receiving the control signal from the control unit, the first
perforating tool to assume the perforating position while the first sheet passes.

30 28. The system of claim 27, wherein, if no second control signal is received at the first
perforation tool, the first perforating tool is maintained in the neutral position.

29. The system of claim 27, wherein the control unit is controlled by a second signal received from a data signal output of a printer.

30. The system of claim 27, wherein the control unit is controlled by a second signal
5 received from a reader that reads codes from the sheets of paper.

31. The system of claim 27, wherein each sheet has been printed before such sheet passes the perforating tool.

10 32. The system of claim 27, wherein the perforation unit includes at least a second perforating tool that selectively perforates the selected sheets of paper.

33. The system of claim 27, wherein:

the first control signal indicates that the first perforation tool is to assume the
15 perforating position for a first duration;

the means for actuating includes:

means for actuating the first perforation tool to assume the perforating position for the first duration and returning the first perforation tool to the neutral position after the first duration has elapsed to produce a perforation of a desired length; and

20 the desired length of the perforation is different for two or more of the perforated sheets.